

We Claim:

1. A multifunction communication system for use with a personal computer, the personal computer having a processor, a memory, and a peripheral data store, the multifunction communication system connected to a caller identification encoded telephone line, comprising:
- 5 a communications module connected to the personal computer, the module comprising:
- 10 communications interface means connected for communicating to the personal computer for transferring data between the personal computer and the communications module;
- telephone line interface means for connection to the caller identification encoded telephone line;
- 15 telephone voice interface means for receiving local voice signals from a local user and for conveying remote voice signals from a remote user to the local user;
- full-duplex conversion means for converting the local voice signals into outgoing digital voice data and for converting incoming digital voice data into the remote voice signals;
- 20 compression means for compressing the outgoing digital voice data into compressed outgoing digital voice data and for decompressing compressed incoming digital voice data into the incoming digital voice data;
- 25 main control means for receiving the compressed outgoing digital voice data from the compression means, for receiving outgoing conventional digital data from the personal computer through the communications interface means, and for multiplexing the compressed outgoing digital voice data and the conventional digital data to produced multiplexed outgoing data;

the main control means further for receiving multiplexed incoming data which contains incoming conventional digital data multiplexed with the compressed incoming digital voice data, for demultiplexing the incoming conventional digital data and the compressed incoming digital voice data, and for sending the incoming conventional digital data to the personal computer through the communications interface means and for sending the compressed incoming digital voice data to the compression means;

the personal computer executing software to communicate with the communications module through the communications interface and operable for  
10 initiating a telephone call to a remote site in response to the commands by the local user and for causing the main control means of the communications module to perform multiplexing and demultiplexing; and

the personal computer further operable for receiving and storing the  
15 incoming conventional digital data received from the communications module  
over the communications interface and for transmitting the outgoing conventional  
digital data to the communications module over the communications interface.

2. A personal communication system for use with a caller  
20 identification encoded telephone network and a personal computer, comprising:  
data interface means connected for transferring data to and from  
the personal computer;

telephone line caller identification interface means for connection to a plurality caller identification encoded telephone lines including a first telephone line and a second telephone line;

telephone handset means for receiving local voice signals from a local user and for conveying remote voice signals from a remote user to the local user;

30 full-duplex conversion means connected to the telephone handset  
means for converting the local voice signals into outgoing digital voice

data and for converting incoming digital voice data into the remote voice signals;

voice compression means connected to the full-duplex conversion means for compressing the outgoing digital voice data into compressed outgoing digital voice data and for decompressing compressed incoming digital voice data into the incoming digital voice data;

main control means connected for

receiving the compressed outgoing digital voice data from the voice compression means,

receiving outgoing conventional digital data from the personal computer through the data interface means,

multiplexing and transmitting compressed outgoing digital voice data with the outgoing conventional digital data, and

passing the the remote voice signals to the second telephone line.

3. The personal communications system of claim 2 wherein the telephone line caller identification interface comprises:

data storage means;

caller identification decoding means;

telephone line switching means;

telephone line connection means;

data comparison means; and

hang up means.

4. The personal communications system of claim 2 wherein the telephone line caller identification interface comprises:

storage means for storing access information;

caller identification decoding means to decode caller identification

information;

telephone line switching means for routing caller identification signals to the caller identification decoding means;

telephone line connection means for maintaining a telephone connection from an authorized caller;

5 comparison means to compare caller identification information to stored access information; and

hang up means for terminating access.

5. The personal communications system of claim 4 wherein the storage  
10 means includes means for storing caller telephone number, caller name, time of day, date, number of calls.

6. The personal communications system of claim 4 wherein the caller  
15 identification decoding means decodes caller identification information including caller telephone number, caller name, time of day, and date.

~~7. A method for controlling access to a telephone personal communications  
system, comprising the steps of:~~

~~preprogramming a memory device with access parameters;~~

20 ~~detecting a phone call;~~

~~receiving caller identification information without answering the phone  
call;~~

~~decoding caller identification information;~~

~~comparing caller identification information with access parameters to  
25 determine whether access is authorized;~~

~~if access is unauthorized, hanging up; and~~

~~if access is authorized, enabling a connection to the telephone personal  
communications system.~~

8. ~~The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of names of authorized caller names.~~

9. The method of claim 7, wherein the step of preprogramming further  
5 comprises the step of programming a list of authorized caller telephone numbers.

10. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of authorized times of day to call.

10 11. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of authorized days to call.

12. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of authorized caller names, days and  
15 times of day to call.

13. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of authorized caller telephone numbers, days and times of day to call.

20 14. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of unauthorized caller names.

15. The method of claim 7, wherein the step of preprogramming further  
25 comprises the step of programming a list of unauthorized caller numbers.

16. A personal communications system interface, connected to a telephone line, for screening incoming telephone calls to personal communications system electronics, the internal personal communications system interface comprising:

30 a telephone input port;

a ring detector;

an off-hook circuit;

a dc holding circuit;

a caller identification information decoder;

5 a multiplexer;

a controller; and

a memory device.

17. The apparatus of claim 16 wherein the controller is a processor.

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18. The apparatus of claim 16 wherein the controller is combinational logic.

19. A personal communications system interface, connected to a telephone line, for screening incoming telephone calls to personal communications system electronics, the internal personal communications system interface comprising:

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a telephone input port for receiving telephone signals into the interface;

a ring detector, connected to the telephone input port, for detecting an incoming call;

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an off-hook circuit, connected to the telephone input port, for connecting the personal communications system interface to the telephone line;

a dc holding circuit, connected to the off-hook circuit and the input port, for maintaining a connection with incoming telephone calls;

a decoder for decoding caller identification information and personal communications system data;

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a multiplexer, connecting the decoder to the telephone input port and the dc holding circuit, for selecting telephone signals from the telephone input port for caller identification information decoding and from the dc holding circuit for personal communications system data decoding;

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a controller, connected to the ring detector, off-hook circuit, dc holding circuit, multiplexer, and decoder, for controlling the internal personal

